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Review Article

ROLE OF *PANCHAKARMA* WITH SPECIAL REFERENCE TO *BASTI CHIKITSA* IN MUSCULOSKELETAL DISORDERS: A CRITICAL REVIEW

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ABSTRACT

Musculoskeletal conditions affect people of all age groups in all regions of the world. According to the Global burden disease report, musculoskeletal disorders are an increasing healthcare issue and have become the second most common cause of disability. Musculoskeletal conditions are characterized by pain, limitations in mobility, dexterity and functional ability which restrict a person's ability to work and participate in society which in turn affects mental well being as well. According to the data by WHO 20-30% of people across the globe live with a painful musculoskeletal conditions. Pain and restricted mobility are the main features in MSD and the drugs used in contemporary medicine are analgesics, NSAIDS, DMARDS, corticosteroids etc. which are associated with long term adverse-effects.

In Ayurveda Classics MSD's can be related with the various diseases described under *Vatavyadhi*. *Basti* is the best line of treatment for treating all types of *Vataja* disorders. By reviewing the classical texts, it is understood that the *Basti* reaches in *Pakawashaya* and from there works on all the organs by virtue of the *Virya* (~potency) present in *Basti dravyas*. In this article an attempt has been made to explain effect of *Basti chikitsa* in the management of musculoskeletal disorders through analysis of various researches performed. Also various research papers available through Pub med, Google scholar, Wikipedia and websites has been compiled in this articles which can be practiced in daily basis that will lead to betterment of the patient's conditions.

KEYWORDS: Musculoskeletal disorders, *Vatavyadhi*, *Panchakarma*, *Basti chikitsa*.

INTRODUCTION

Musculoskeletal disorders (MSDs) are injuries or pain in human musculoskeletal system including the joints, ligaments, muscles, nerves, tendons, and structures that support limbs, neck and back.^[1] MSDs are an increasing health care issue globally being the second leading cause of disability and lower back pain remained the single leading cause of disability. Musculoskeletal conditions are characterized by pain (often persistent pain) and limitations in mobility, dexterity and functional ability reducing people's ability to work and participate in social roles with associated impacts on mental well being and at broader level impacts on prosperity of communities.^[2] The most common musculoskeletal conditions are osteoarthritis, back and neck pain, fractures associated with bone fragility, injury and systemic inflammatory conditions such as rheumatoid arthritis.^[3] According to the data by WHO between 20-30% of people across the globe lives with a painful musculoskeletal

conditions. The most common feature of musculoskeletal disease is pain and restricted mobility in which pain typically persist for long term conditions. In Ayurveda MSDs comes under the major heading of *Vatavyadhi* which involves all types of musculoskeletal disorders. Most common features of MSDs described in classics are.

According to Acharya Charak^[4] - *Sankoch* (muscle contraction), *Parva sthambha* (stiffness in joints), *Parvabheda* (pain in joints), *Pani*, *Prishtha* and *Shirograha* (stiffness in hand, back and head), *Khanja* (lame), *Pangulya* (paraplegia), *Kubjatava* (hump back), *Anga shosha* (muscular atrophy), *Gatra spandan* (feeling of something moving in body), *Gatra suptata* (numbness in whole body), *Greeva hundan* (cracking of scalp and pain in temporal region), *Bheda*, *Toda* (types of pain), *Akeshapa* (convulsions), *Moha* (loss of sensorium), *Aayasa* (feeling of exertion). Along with that they also described concept of *Dhatugata vata*, and *Avritta vata*. Later on

they mentioned disease with their specific names like; *Ardita* (facial palsy), *Manyasthambha* (torticollis), *Bahiraayama* (opisthotonos), *Hanusthambha* (temporal mandible joint dislocation), *Dandak* (stiffness in whole body), *Pakshaghata* (paralysis), *Gridhrasi* (Sciatica).

Acharya Sushruta^[5] - mentioned some extra disease along with the above mentioned these are; *Angashosha*, *Khalli*, *Vishvachi*, *Avabahuka*, *Koshtruksheersha*, *Kalaya khanja*.

Acharaya Madhav^[6] - Along with all these disease one extra disease mentioned that is *Vepathu* (tremors).

In Ayurveda before execution of treatment one should be very clear about *Nidana* and *Dosha* involvement that's why *Acharya* says first diagnose the disease and then plan for best suitable treatment.^[7]

Pathogenesis of Musculoskeletal disorders^[8]

Nidana sevana includes excessive use of dry, cold, less and light diet, excessive coitus, night awakening, not following diet and regimen after therapy, excessive expulsion of bio humors or blood, due to *Langhana* (prolong fasting), swimming, excess use of vehicles, sitting in wrong postures, due to depletion of *Dhatu*s or psychological causes like anxiety, stress, sorrow, anger, day sleeping, fear, suppression of natural urges, external trauma or injury, avoidance of food intake, injury to *Marma* points (vitals points), falling off from certain heights all these factors leads to vitiation of *Vata* mainly but can be associated with *Pitta* and *Kapha* also. This vitiated *Vata* reaches to *Srotas* and manifests localized or generalized disorders.

Management of Musculoskeletal disorders in contemporary science mainly includes uses of NSAIDs drugs (non steroidal anti-inflammatory drugs) which are having adverse effect on health. According to one study conducted in Nigerian patients found that they were not informed about the side effects of NSAIDs by the prescribers. Dizziness and abdominal pains were the most experienced side effects of NSAIDs.^[9] After the introduction of selective cyclooxygenase-2 (COX-2) inhibitors (or coxibs) there has been ongoing discussion and debate about the safety of all NSAIDs. Current available evidence suggests both traditional NSAIDs and coxibs increase the risk of gastrointestinal and cardiovascular toxicity.^[10]

Treatment of MSDs in Ayurveda depends on causation of disease that is either due to aggravation of *Vata dosha* or due to depletion of *Dosha*^[11]. So, when there is accumulation of morbid *Doshas* *Shodhana* therapy and in *Kshaya* condition *Brihana chikitsa* should be done respectively. In *Ayurveda*

there is one specialized field known as *Panchakarma* which mainly includes five therapeutic procedures namely *Vamana*, *Virechana*, *Basti*, *Nasya* and *Raktamokshan*^[12]. Among them *Basti* is one therapeutic procedures in which medicated drugs are administered through anal route with the help of *Basti yantra*^[13]. *Acharya charak* says that *Basti* is best therapeutic procedure to treat all types *Vata* disorders^[14]. They mentioned that *Basti* can be used in multidimensional approach like *Apatarpana* or *Santarpna* depends upon the usage of respective drugs^[15]. *Basti* can be classified in many ways depending upon site, quality, numbers, action, nature, drugs etc. Mainly it is of two type's *Niruha* and *Anuvasan*. *Niruha basti* is one in which mainly *Kwath dravya* are used. It contains mixture of *Madhu*, *Saindhava*, *Sneha*, *Kalka* and decoction. It is called so as it expel out morbid *Doshas* from the body. Various synonyms have been mentioned for *Niruha basti* like *Madhutailik*, *Yapana*, *Yuktaratha* and *Siddhabasti* ^[16]. *Anuvasana basti* is one which predominantly contain medicated *Sneha* is used and required in lesser quantity than *Niruha*^[17]. Further on the basis of doses *Sushruta* divides it into three types i.e., *Sneha*, *Anuvasana* and *Matra*^[18]. This *Basti* is used where *Snehana* or *Brihana* is required. In the pathogenesis of *Vatavyadhi* one term "*Rikta sthana*" has been mentioned which means vitiated *Vata* leads to decrease or diminished *Snehadi* qualities in the passages, so it is helpful in achieving those qualities.^[8] On reviewing various research papers it has been found that a lot of research work has been done on role of *Basti* in musculoskeletal disorders and analyzed that *Basti* therapy is very much effective and produce statistically significant results in both subjective as well as objective parameters assessed on various validated scale.

MATERIALS AND METHODS

The whole review was carried out on the basis available literary material includes *Brihatrayee*, *Laghutrayee*, Ayurvedic classics, related topics from modern texts, available resources from the internet. Also, various data has been collected available on pub med, Medline, Google scholar, Ayush research portal and various online available journals based on some clinical trials.

RESULT

Basti is one the most practiced therapeutic procedure that can be done on OPD basis. The first and foremost sign in the patient of musculoskeletal disorders is persistent of pain which mainly due to vitiation of *Vata dosha*^[19]. *Acharya sushruta* says that *Basti* can be administered if there is vitiation of *Vata* alone or if it is associated with *Pitta*, *Kapha*, and *Rakta* also^[20]. In classical text according to the

condition and involvement of *Doshas* in MSDs *Basti* therapy has been mentioned which are given below:

According to *Acharya Charak*^[21]

1. <i>Durbala</i> (patient with less strength)
2. Those contraindicated for <i>Virechana</i>
3. Vitiating <i>Vata dosha</i> reaches whole body
4. <i>Vata dosha</i> situated in <i>Mamsa</i> and <i>Meda dhatu</i>
5. <i>Gridhrasi</i>
6. <i>Yapana Basti- Pitta avritta vata</i>
7. <i>Tikhsna niruha basti- Kapha avritta vata</i>
8. When <i>Kapha</i> or <i>Pitta doshas</i> reaches in <i>Pakvashaya</i>
a) <i>Kapha- basti</i> mixed with <i>Gomutra</i>
b) <i>Pitta- Basti</i> contain <i>Ksheera</i>
9. <i>Yapana basti- Prana avritta samana</i>
10. <i>Udana avritta apana vayu</i>
11. <i>Kapha avritta vata</i>
12. <i>Kapha pitta avritta vata</i>
13. <i>Vatarakta</i> ^[22]

According to *Acharya Sushruta*^[23]

1. <i>Pakvashaya gata vata</i>
2. <i>Basti Pradesh gata vata</i>
3. <i>Sarvanga or Ekanga vata</i>
4. <i>Vatarakta</i>
5. <i>Aptanak</i>

Acharya vagbhata mentioned the same as in *Charak samhita*.

Based on clinical evidences there are innumerable *Basti* preparations used in day to day life in most commonly existing MSDs which has been mentioned below:

Most commonly used *Niruha basti* are^[24]

1. <i>Dashmoola</i>	<i>Vata</i> disorders, RA
2. <i>Erandamoola</i>	Sciatica, Lumbago, Disc disease
3. <i>Sahachardai</i>	Sciatica, Lumbago, radiculopathy
4. <i>Mustadi yapana</i>	Paralytic conditions
5. <i>Panchatikta Kshera</i>	Osteoarthritis, Avascular necrosis of head of femur
6. <i>Vaitarana</i>	RA, Backache
7. <i>Kshara basti</i>	RA

Most commonly used *Anuvasana basti* are^[25]

1. <i>Dashmoola taila</i>	Disease of <i>Vata</i> , RA
2. <i>Bala taila</i>	Sciatica, Lumbago, Disc disease
3. <i>Sacharadi taila</i>	Sciatica, Lumbago, radiculopathy
4. <i>Mahanarayan taila</i>	Paralytic conditions
5. <i>Dhanvantaram taila</i>	Paralytic conditions
6. <i>Maha tikta ghrita</i>	Osteoarthritis, Avascular necrosis of head of femur
7. <i>Brihat saindhavadi tailam</i>	RA

Researches done on *Basti* used in MSDs

1. Effect of *Kshara Basti* and *Nirgundi Ghana Vati* on *Amavata* (Rheumatoid Arthritis)^[26]

According to Thanki et al. *Kshara Basti* in the form of *Kala Basti* was given along with *Nirgundi Ghana Vati* was given for one month. Statistically significant improvement was found in ESR, RA factor (quantitative) and also highly significant results were found in symptoms of *Amavata*. Moderate improvement was seen in 40% of patients, 35.56%

patients got marked improvement, while mild improvement was found in 24.44% of patients.

2. Effect of *Majja Basti* (therapeutic enema) and *Asthi Shrinkhala* (*Cissus quadrangularis*) in the management of osteoporosis (*Asthi-Majja-kshaya*)^[27]

The present study done by Gupta et al. BMD (t-score) increased by 30.98% after completion of duration of treatment, which was statistically highly significant ($P < 0.001$). This indicates that the drugs enhance bone formation as well as decrease bone resorption.

Researches prove that *Asthi Shrinkhala* has an active ingredient known as ketosterone. On this basis, it performs multiple actions as follows. 1) It promotes good bone health. 2) It shows properties for healing of fracture. 3) Increases intramuscular creatinine levels. 4) Blocks the muscle damaging effect of cortisol and leads to the formation of new muscles. 5) Shows significant inhibition of DPPH free radical formation, superoxide radical production and lipid peroxide production in erythrocytes. 6) Shows sedative effect on the central nervous system.

3. Clinical efficacy of *Eranda Muladi Yapana Basti* in the management of *Kati Graha* (Lumbar spondylosis)^[28]

Fernando et al did trial on 23 patients of either sex in the age between 20 to 65 years having signs and symptoms of LS were selected and were administered *Yapana Basti* for a period of 15 days. Highly significant results were observed and improvement in cardinal symptoms of *Kati Graha* was observed. It also provided highly significant results in improving Oswestry Disability Index Scale, range of movements and pain intensity This procedure appears to provide good clinical improvement in pacifying pure *Vataja* or *Vata Kaphaja* type of *Kati Graha*.

4. A clinical study of *Nirgundi Ghana Vati* and *Matra Basti* in the management of *Gridhrasi* with special reference to sciatica^[29]

According to Ali et al. a total of 119 patients were registered for the study, out of which 102 patients completed the treatment: 52 patients in group A (*Nirgundi Ghan Vati*) and 50 in group B (*Nirgundi Ghan Vati + Matra Basti*). The results show that both treatments had an effect on *Gridhrasi*, but there was better relief of the signs and symptoms in group B.

5. Role of *Dashmooladi taila janu matra basti* in *Janu sandhigata vata*^[30]

Wadhwa et. al in this study given *Matra basti* for 15 days and patients were assessed on WOMAC scale showed marked improvement after the treatment. Among six patients 4 got significant improvement while two of them got mild improvements.

6. Management of Duchenne muscular dystrophy^[31]

By Jayraj et al. in this study *Ksheera basti* in the form of *Kala basti* was given prepared with *Bala* and *Shatavari* and *Anuvasan basti* was administered with *Mahamasha taila* along with that *Shashti shaali pinda sveda* and it was found that serum CPK value reduced after second sitting and significant improvements were there in subjective symptoms like straightening of legs able to move, can placed foot properly.

7. *Basti chikitsa* in *Vatarakta* with special reference to hyperurecemia^[32]

Katariya paresh et al performed *Guduchi siddha ksheera basti* and found 80% relief in swelling, pain and burning sensation. Also significant reduction in serum uric acid level was observed.

8. Clinical efficacy of *Madhu ghrutadi yapana basti* (enema) in the management of *Vataja gridhrasi* (Sciatica)^[33]

Ilikumaba et al. given *Niruha basti* with *Madhughritadi yapana* and *Anuvasana basti* with *Murchita ghrita* in *Vataja Gridhrasi* for 9 days in form of *Yoga basti* sequence followed by *Parihara kala* of 18 days. Study were assessed using paired 't' test and wilcoxon matched pair signed rank test and it was found that 60% patients showed major improvement, 27% moderate improvement and 13% minor improvement.

9. The role of *Matra Basti* with *Bala taila* in *Sandhigata Vata* w.s.r to ability to Climbing stairs in patients of osteoarthritis - Knee Joint.^[34]

According to this study done by Anurag et al. subjective parameter that is climbing ability was used to assess effectiveness of *Basti* therapy. In this trial *Matra basti* was given for seven days and significant improvement was observed.

10. Effect of *Anuvasana Basti* with *Ksheerabala Taila* in *Sandhigata Vata* (Osteoarthritis)^[35]

In this trial performed by Pradeep et al. 30 patients of *Sandhigata Vata* were given *Anuvasana Basti* with *Ksheerabala Taila*. Subjective assessment of pain by visual analog scale and swelling, tenderness, crepitus and walking velocity were graded according to their severity. Significant results ($P < 0.05$) were found in all the cardinal symptoms - Pain (*Sandhiruja*), Swelling (*Shotha*), tenderness, crepitus and walking velocity. Radiological findings showed no significant changes.

11. Clinical efficacy of *Panchamuladi Kaala Basti* (enema) in the management of *Amavata* (Rheumatoid Arthritis)^[36]

In this study done by Brajneesh et al. total duration of treatment was 21 days which included *Langhan* for 3 days, *Deepan-pachan* for 3 days and *Kaala basti* for 15 days. In which *Niruha basti* with *Panchmooladi decoction* and *Anuvasana basti* with *Panchmooladi taila* was given and highly significant results ($P < 0.001$) in all the cardinal symptoms- *Sandhi ruja* (42.08%), *Shotha* (73.3%), *Stabdghata* (70.09%), *Ushnata* (95%), *Sparshasahyata* (100%) prove that *Panchamooladi Basti* is effective in *Amavata*.

12. Clinical evaluation of *Panchatikta ksheer basti* in *Sandhigata vata* w.s.r.to osteoarthritis of knee joint.^[37]

In this study by sayeed et al. two group was studied among them one group *Panchatikta ksheera basti* was

given and in one group *Yoga basti* with *Dashmoola niruha* and *Anuvasana basti* with *Tila taila* was given and found that *Panchatikta ksheera* proves more effective than *Yoga basti* with respect to *Shotha*, *Shoola*, *Sandhigraha* and *Vatapurnadruti sparsha*.

13. Prevalence of use alternative medicine and complementary medicine among patients^[38]

There was one cross sectional study done in UAE in which prevalence of use of alternative and complementary medicine in a sample 305 patients in Ajman UAE were assessed and it was found that 51.1% of subjects use alternative medicine. Out of these, 30.1% use it along with allopathic medicine. 34% subjects used Ayurveda medicine for general aches and 46.8 % for pain. Most subjects chose CAM because they felt that allopathic were not effective (30.2%). They also felt that the benefit of using CAM was relieving stress (23%) and reducing the severity of the condition at (22.6%). No significant difference was found between the effectiveness of CAM alone and CAM with allopathic.

DISCUSSION

On reviewing the literature and online published data it has been found that in most of the trials *Basti* therapy given along with some other *Panchakarma* procedures was given to the patients. Here lists of 13 articles were provided in which only the effect of *Basti* therapy as a single procedure was observed and found that *Basti* therapy is very much effective in MSDs. It was found that there are few *Basti* which are very efficiently practicing in musculoskeletal disorders these are; *Vaitaran basti*, *Kshara basti*, *Saindhavadi taila basti* and *Panchamooladi kaal basti* in Rheumatoid arthritis, *Tail Basti* are specially indicated where *vata shaman* is required like osteoarthritis, Sciatica and disc degenerative disorders, whereas *Yapana basti* is given where nourishment of *Dhatu*s are required like in Duchenne's muscular dystrophy, spondylolytic disease, avascular necrosis of femur etc.

CONCLUSION

In *Ayurveda basti* therapy is consider as *Ardha chikitsa* that means *Basti* therapy have potency to cure the disease provided selection and proper execution of *Basti* therapy according to nature of *Dosha*, *Dushya*, *Vyadhi*, and *Vyadhita* (patient). In this article we can conclude that significant improvement can be achieved by implementing *Basti* therapy in the patients of MSDs.

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